

4D2 NOTES

In Volume 4 of the ARCADIAN there is a program on page 5 called 4D2. As one of the authors, I still receive telephone calls asking about the program, with the bulk of the calls dealing with "how can I change this to work with ASTROCADE BASIC?"

This is an attempt to explain what the program does, how it works, and some details on what must be changed. I hope this is enough information for the ARCADIAN readers to make the program work.

The first patch to be made is the CALLS to 20078 (lines 70, 80, 2540, 2630) which should all be changed to CALL 20002. This is, for the observant, the address of the "A" variable. The variables "A"-"E" contain a quick call to the on-board ROM routine for expanded characters (most of the variables are treated as RAM space for 280 subroutines) with the word to be displayed in "F"-"H". To generate new words, enter: "F=KP+KPx256:G=KP+KPx256:H=KP <GO>" and then type in 5 characters. Do NOT try to use the BASIC words (such as CLEAR, LINE, etc.) unless you spell them out, as the on-board ROM gets confused. After executing the above steps, PRINT F,G,H to set the new numbers and change one of the lines at 2000-2110. The first 3 lines are not normally accessed by the program but can be added by changing line 2220 to read GOSUB <line # of first word> + RMx10. The total number of lines used is in line 2210: W=Z + <# of lines (or words) used>.

The next change is more important, as it enables the color and sound section. The interrupts are used for this, and were set up for BALLY BASIC by the variables J (light pen vector), K (screen interrupt vector) and L-Q (change-over code). Since ASTRO BASIC holds these vectors in RAM it becomes much easier to change them for our purposes. The following lines should be changed:

```
2590 J=8691;K=19824
2600 L=-27102;M=-1202
2610 N=201
2620 <delete this line>
2630 CALL 20002 <you should have done this already>
2640 CALL 20020
```

Also, change the :RETURN (line 110) to "K=8701:CALL 20020". Just in case there are several versions of ASTRO BASIC available, you should check the 8701 above. Just type "PRINT %<20118>" and use the number that appears. This is the address of the normal screen interrupt in ASTRO BASIC.

Other changes:

```
Delete lines 2450, 2470
Delete lines 3000, 3010 (not used)
Change lines 130 and 2480 to NT=-1: ↓
Data items: 19=20538 28=21050 37=20046
```

Now, RUN the program. It will prompt you for the 1s and then start running. If you make a mistake entering the numbers, STOP the program, enter "@(1)=0:RUN" and try again. Do NOT use the HALT key when the screen background is black, because the keypad timer is turned off and will never come back for the next keypress. Pull and HOLD the trigger (#1) until the screen turns back to white. Then simply use ":PRINT" to save your new version to tape. You might wish to

save the program after the changes are made and before loading the @s, just in case a bug creeps in. This way, you won't have to re-key the whole program, just the data. Once the program is on tape it can be reloaded and run with ":INPUT;RUN". Have fun!

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